DRAFT Health and Safety Plan
For the Paint Removal Pilot Test on Building 13
Rainier Commons Facility
3100 Airport Way S.
Seattle, Washington

October 5, 2009

Prepared For:

Rainier Commons LLC
3100 Airport Way S.
Seattle, Washington 98134

Prepared By:

CDM
11811 NE 1st Street, Suite 201
Bellevue, Washington 98005

A Report Prepared For :

Rainier Commons LLC
3100 Airport Way S.
Seattle, Washington 98134

DRAFT HEALTH AND SAFETY PLAN
FOR THE PAINT REMOVAL PILOT TEST ON BUILDING 13
RAINIER COMMONS FACILITY
3100 AIRORT WAY S.
SEATTLE, WASHINGTON

October 5, 2009

Don Clabaugh, PE
Project Manager

CDM
11811 N.E. 1st Street, Suite 201
Bellevue, Washington 98005
425/453-8383

CDM Project No. 79179-73277

EMERGENCY REFERENCES

Key Telephone Numbers

OFF-BASE AMBULANCE 911

OFF-BASE POLICE 911

OFF-BASE FIRE 911

NATIONAL RESPONSE CENTER 1-800-424-8802

POISON CONTROL CENTER 1-800-682-9211

TOXLINE 1-301-496-1131

CHEMTREC 1-800-424-9300

Project/Site Manager Name _____ Cell _____

Safety and Health Officer Name_____ Cell _____

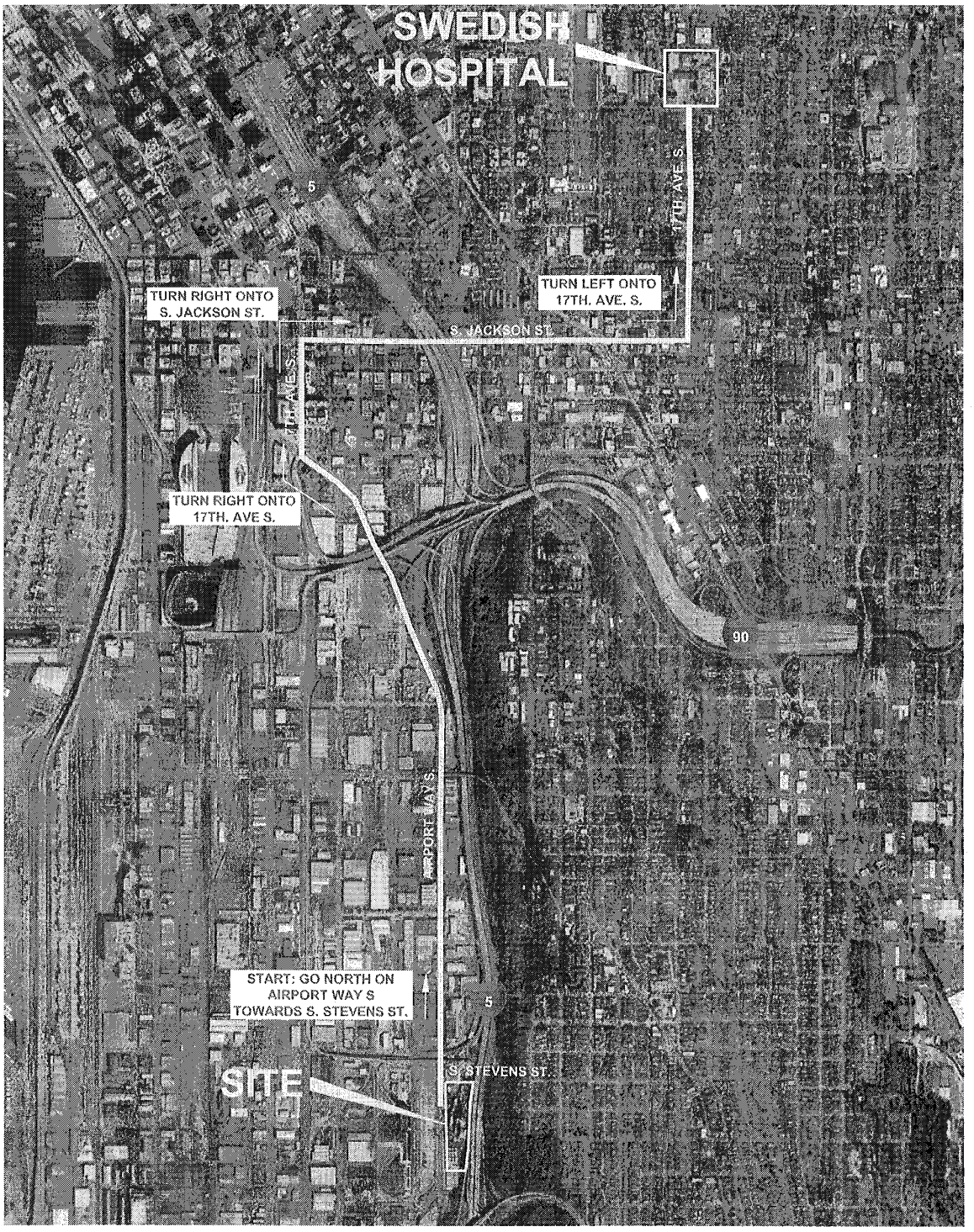
Rainer Commons Representative Name _____ Cell _____

Site Address - 3100 Airport Way S, Seattle, WA 98134-2116

Nearest Hospital - Swedish Hospital 500 17th Ave, Seattle, WA 98122-5711
Directions to Hospital - Start out going NORTH on AIRPORT WAY S toward S STEVENS ST. 1.2 mi
Stay STRAIGHT to go onto 7TH AVE S. 0.4 mi
Turn RIGHT onto S JACKSON ST. 0.6 mi
Turn LEFT onto 17TH AVE S. 0.5 mi
500 17TH AVE. 0.0 mi

Emergency Response Plan

In the event of a medical emergency, phone 911, and request emergency medical assistance. Injured parties should not be moved or treated unless there is an immediate threat to human health. Prior to arrival of professional medical assistance, a qualified individual with First Aid and CPR training will available to give first aid and stabilize any worker needing assistance if there is an immediate threat to human health. Life support techniques such as cardiopulmonary resuscitation and treatment of life-threatening problems such as bleeding, airway maintenance, and shock will be given top priority.



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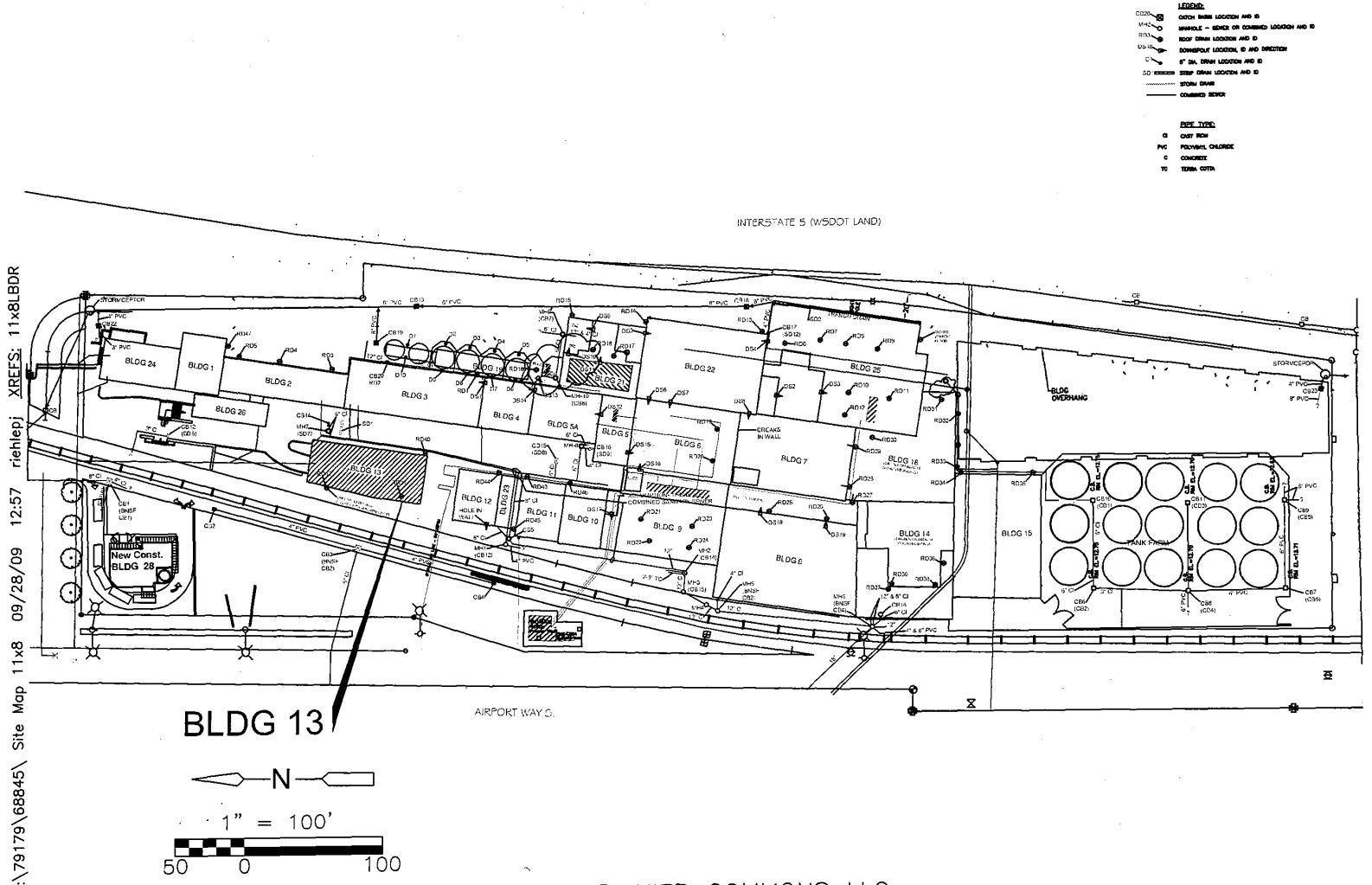
CDM

RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE WASHINGTON

Figure No. 1
Hospital Route Map



P:\79179\68845\ Site Map 11x8 09/28/09 12:57 riehlepj XREFS: 11x8LBDR

RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON

Figure No. 2
Site Plan

CDM

RCLLC 0001303

DISCLAIMERS AND LIMITATIONS ON USE

Camp Dresser & McKee Inc. ("CDM") developed the following Site Safety and Health Plan (the "SSHP") for use by Rainier Commons LLC (the "Client") personnel and by Purcell Paintings & Coatings (contractor) in connection with pilot testing paint removal methods on Building 13 of the Rainier Commons facility (the "Project") being performed by the Contractor and the Client at the Building 13 of 1300 Airport Way, Seattle, Washington (the "Site").

The contractor must review the SSHP and agree to accept and abide by the SSHP, subject to any modifications to the SSHP agreed upon in writing by the Client and the contractor. The contractor shall indicate such acceptance by executing a copy of this notice of disclaimers and limitations on use as indicated below and returning it to the Client prior to its commencing work at the Site. However, if the contractor commences work at the Site, the contractor shall be deemed to have accepted the SSHP and the terms hereof and the failure to execute and return to the Client a copy of this notice shall not be relevant to such interpretation.

If a contractor or a person other than the Client and contractor (individually, a "Third Party" and collectively, "Third Parties") receives a copy of the SSHP, such Third Party should not assume that the SSHP is appropriate for the activities being conducted by the Third Party. NO THIRD PARTY HAS THE RIGHT TO RELY ON THE SSHP. EACH THIRD PARTY SHOULD ABIDE BY ITS OWN SSHP IN ACCORDANCE WITH ITS OWN PROFESSIONAL JUDGMENT AND ESTABLISHED PRACTICES.

The SSHP generated by CDM in connection with the Project is for the exclusive use of the Client on a specific site and in connection with a specific project. CDM makes no representation or warranty as to the suitability of the SSHP for reuse on another site or as to the suitability of the SSHP for reuse on another project or for modifications made by the Client or a Third Party to the SSHP.

Purcell Paintings & Coatings

Agreed and Accepted By: _____

Title: _____ Date: _____

Contents

Section 1
Introduction

This Site Safety and Health Plan (SSHP) has been developed by CDM Inc., (CDM) to establish the safety and health procedures required to minimize potential hazards to personnel who will be involved in pilot testing paint removal techniques at the Building 13 Pilot Test for the Rainier Commons facility located at 3100 Airport Way S. in Seattle, Washington. The provisions of this SSHP directly apply to personnel who will be potentially exposed to safety or health hazards related to the project.

The procedures in this SSHP have been developed based upon current knowledge regarding the specific chemical and physical hazards that are known or anticipated for the operations to be conducted at the Site. This SSHP has been written to comply with the requirements of:

1 Occupational Safety and Health Administration (OSHA) Standards and Regulations contained in Title 29, Code of Federal Regulations, Parts 1910 and 1926 (29 CFR 1910 and 1926), including amendments as stated in Federal Register March 6, 1989: 9294 9336 (Final Rule, 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response").

2 United States Environmental Protection Agency (EPA) Standard Operating Guidelines, Revised November 1984.

3 National Institute of Occupational Safety and Health NIOSH/OSHA/OSCG/EPA Occupational Safety and Health Guidance (OSHG) Manual for Hazardous Site Activities, October 1985, Department of Health and Human Services (DHHS) NIOSH Publ. No. 85 115.

4 Washington Administrative Code (WAC) WAC 296-62-07521.

On-site personnel who cannot, or will not, comply with these requirements will be excluded from project activities. Prior to the commencement of field activities, all personnel covered by this SSHP must review this document and return the sign-off form to the site Safety and Health Officer (SHO).

1.1 Background

The Rainier Commons facility is situated on an approximately 4.6-acre parcel located on the west side of I-5, just north of the Spokane Freeway in Seattle, Washington. The site location is shown on Figure A-1. The property was initially developed in the late 1800s as a brewery and functioned in a similar capacity until 1996 (Farallon, 2004). The facility was owned by several entities over the years, but is most widely known as the "former Rainier Brewery." In July 2003, the Site was sold to Rainier Commons LLC who is currently developing the site as a multi-use, artisan-based cooperative facility. Tully's, a coffee roaster, has occupied the site as a tenant since November 1998 (Farallon, 2004) and is the next most widely known occupant of this facility.

The Site currently includes 24 buildings that are generally connected to each other to form a single large structure that occupies the majority of the Site. The attached Figure 1-1 shows the site layout. Most of the buildings are multi-floored structures with as many as eight levels that are generally constructed of steel-reinforced concrete (Farallon, 2004). The building exteriors generally consist of brick, concrete, and sandstone. Paint does not strongly adhere to these materials, especially brick and sandstone, and Seattle's freeze and thaw conditions tend to exacerbate flaking and peeling.

In October 2005 PCBs were identified in the storm drain catch basin sediments. Eventually, the source of PCBs was traced back to the buildings' exterior paint. A paint chip sample collected by Vernon Environmental, Inc. in 2008 was found to contain 2,300 milligrams per kilogram (mg/kg) of the PCB congener Arochlor (A) 1254. On March 25, 2009, CDM collected a paint chip sample off Building 13. This sample contained 160 mg/kg A1254 and 130 mg/kg A1260. The EPA collected a duplicate of CDM's sample and the total A1254 and A1260 congeners were reported at 2,500 mg/kg.

1.2 Building 13 Pilot Test

Several methods of paint removal will be tested on exterior surfaces of Building 13. Building 13 is an individual building located on the northwest side of the main building structure (refer to Figure 1-1). Methods to be tested include ultra high pressure hydro blasting, abrasive blasting, and chemical stripping. Each of these methods will be tested on at least one of the two common exterior surfaces at the site, which are brick and concrete block. This SSHP addresses the safety and health procedures required to minimize potential hazards to personnel who will be involved in pilot testing paint removal techniques at the Building 13 Pilot Test.

Section 2
Key Personnel

The organization and responsibilities for implementing safe project activities, and more specifically the requirements contained in this SSHP, are discussed in this section. The key personnel for this project are:

- Project/Site Manager
- Site Safety and Health Officer
- Project Safety and Health Director
- Field Personnel

2.1 Project/Site Manager

The Project/Site Manager is, by designation, the individual who has the primary responsibility for ensuring the overall safety and health of field personnel working on this project. The Project/Site Manager, therefore, has the primary responsibility for ensuring the implementation of the requirements of this SSHP. The Project/Site Manager's specific responsibilities include:

- Ensuring that all project personnel have received a copy of and have read this SSHP and have completed the SSHP signature sheet;
- Requiring the attendance of all site personnel to a tailgate briefing apprising them of the contents of this SSHP and specific hazards identified to be present at the facility prior to performing work;
- Ensuring that sufficient personal protective equipment (PPE), as required by this SSHP, is available during the project;
- Obtaining all contractor documentation of employee participation in a medical monitoring and training program;
- Maintaining a high level of safety and health consciousness among employees at the facility; and
- Maintaining regular communications with the site Safety and Health Officer (SHO).

2.2 Site Safety and Health Officer

The appointed SHO will be a member of the field team. The SHO responsibilities include enforcing the requirements of this SSHP once work begins. By design, the SHO has the authority to immediately correct all situations where noncompliance

with this SSHP is noted and to immediately stop work in cases where an immediate danger is perceived. The SHO's specific responsibilities include:

- Procuring and distributing the PPE and air monitoring instrumentation needed for the project.
- Verifying that all PPE and safety and health equipment is in good working order.
- Setting up and maintaining the personnel decontamination facility.
- Controlling site entry of unauthorized personnel.
- Supervising and monitoring the safety performance of all personnel to ensure that required safety and health procedures are followed, and correcting any deficiencies.
- Conducting accident/incident investigations and preparing investigation reports.
- Initiating emergency response procedures.

2.3 Project Safety and Health Director

The Project Safety and Health Director (PSHD) is the individual responsible for the preparation and interpretation, and modification of this SSHP. Modifications to this SSHP that may result in less stringent precautions cannot be undertaken by the Project/Site Manager or the SHO without the approval of the PSHD. Specific responsibilities of the PSDH include:

- Advising the Project/Site Manager and SHO on matters relating to safety and health on this project.
- Recommending appropriate PPE and air monitoring instrumentation to protect personnel from potential hazards present on site.
- Performing field audits, when necessary, to monitor the effectiveness of the SSHP and to ensure compliance with it.
- Conducting or directing personal exposure monitoring where required and where deemed necessary to determine the adequacy of protective measures and PPE specified by this SSHP.
- Maintaining contact with the Project/Site Manager to regularly evaluate project conditions and new information which might require modification to this SSHP.
- Working with the Project/Site Manager to ensure that sufficient PPE is available at the site.

- Conducting briefing meetings, when necessary, to apprise personnel of the contents of this SSHP and the project hazards.

2.4 Field Personnel

All field and contractor personnel are responsible for following the safety and health procedures specified in this SSHP and for performing their work in a safe and responsible manner. Specific requirements include:

- Obtaining a copy of this SSHP and reading it, in its entirety, prior to the start of field activities.
- Signing the Safety and Health Signature Sheet acknowledging receipt and understanding of this SSHP.
- Bringing forth any questions or concerns regarding the content of the SSHP to the SHO, Project/Site Manager, or PSDH prior to the start of work.
- Reporting accidents/incidents and the presence of potentially hazardous working situations to the SHO and Project/Site Manager.
- Complying with the requests of the appointed SHO.

Section 3
Participant Qualifications

3.1 Training Requirements

The SHO and contractor operators working on the project will have completed an extensive training course and have previously worked at least three days at a hazardous waste site. The training course must be designed to meet the requirements of 29 CFR 1920.120. The training course must consist of a combination of 40 hours of classroom and field exercises plus an annual 8-hour refresher. The SHO will have completed an additional 8 hours of supervisory training in addition to the 8 hour refresher.

All site workers will be required to have conducted an 8-hour Level 1 Awareness training program. Participants will be required to show proof of current training prior to field activities. Training shall be completed before the employee begins working in an industrial or construction setting. This training is intended to provide employees with general awareness training so that they may recognize key hazards and do not inadvertently put themselves or others at risk while performing field work assignments.

Intended participants without current training documentation will be barred from site activities.

3.2 Medical Surveillance

The SHO and contractor operators will be required to complete a medical surveillance program that meets the requirements of 29 CFR 1910.120. The SHO and contractor operators will be required to provide a written statement from a licensed physician stating they have had a medical examination that meets the requirements of 29 CFR 1910.120. This examination must include pulmonary function testing as well as certification by the physician of the employee's ability to wear a negative-pressure respirator and perform strenuous work. If a person sustains an injury or contracts an illness related to work on site that results in lost work time, he/she must obtain written approval from a physician to regain access to the site.

3.3 Record Keeping

Training and medical surveillance for the client representatives and contractor operators and site personnel shall be maintained in project files and are available for inspection at any time.

3.4 Tailgate Meetings

An initial tailgate meeting will be held to ensure that all field personnel meet the training and medical surveillance requirements for this project, and to review the procedures for the safety and health program. Daily tailgate meetings will be held

prior to starting each day's work to discuss safety and health procedures for the specific tasks to be completed during that day.

Section 4
Hazard Evaluation

This section summarizes chemical and physical hazards known or suspected at the Site. Hazards evaluated include:

- Chemical hazards associated with lead and polychlorinated biphenyls (PCBs) in paint.
- Chemical hazards associated with calcium hydroxide, magnesium dioxide, sodium hydroxide, and titanium dioxide in chemical paint strippers.
- Chemical hazards from nickel containing dust from sandblasting activities.
- Physical hazards associated with equipment use including tools, traffic, and noise.
- Electrical and flammability hazards associated with equipment operation.
- Heat stress and cold stress.

The hazard evaluation will be updated if monitoring at the Site indicates the potential for increased exposure to workers, or if field activities described in the SSHP are modified.

4.1 Chemical Hazards

Sited on previous data collected from soil and groundwater beneath the site and adjacent areas, the confirmed and suspected chemical hazards of concern at the Site are lead and non-liquid polychlorinated biphenyls (PCBs) in paint. The following sections describe potential health hazards associated with exposure to each of the contaminants of concern at the site. Exposure information is summarized in Table 4-1. Concentrations of calcium hydroxide, sodium hydroxide, titanium dioxide, and nickel in the paint removal products to be used during the pilot test are listed in the material safety data sheets (MSDS), which are provided in Attachment 1.

4.1.1 Lead (Pb)

Lead exposure can occur via inhalation of dusts or metal fumes, ingestion of dusts, and skin and eye contact. The principal target organs of lead toxicity include the nervous system, kidneys, blood, gastrointestinal, and reproductive systems. Generalized symptoms of lead exposure include decreased physical fitness, fatigue, sleep disturbances, headaches, bone and muscle pain, constipation, abdominal pain, and decreased appetite. More severe exposure can result in anemia, severe gastrointestinal disturbance, a "lead-line" on the gums, neurological symptoms, convulsions, and death.

Neurological effects are among the most severe of inorganic lead's toxic effects and vary depending on the age of individual exposed. Effects observed in adults occur primarily in the peripheral nervous system, resulting in nerve destruction and degeneration. Wrist-drop and footdrop are two characteristic manifestations of this toxicity.

EPA also currently lists inorganic lead as a Group B2 probable human carcinogen via the oral route. This conclusion is based on feeding studies conducted in laboratory animals. The current PEL-TWA for inorganic lead is 0.05 mg/m^3. Occupational exposure to lead is also specifically regulated under WAC 296-62-07521, with an action level established at 0.03 mg/m^3 that triggers monitoring and other requirements.

4.1.2 Polychlorinated Biphenyls (PCBs)

PCB is a generic term for a range of PCB compounds used commercially in heat transfer media and in the chemical/coatings industry. PCBs have been marketed commercially under the trade names Askarel® and Aroclor®, with a designation referring to the percent weight of chlorine. Prolonged skin contact with PCBs may cause acne-like symptoms, known as chloracne. Irritation to eyes, nose, and throat may also occur. Acute and chronic exposure can cause liver damage, and symptoms of edema, jaundice, anorexia, nausea, abdominal pains, and fatigue. If pregnant women accidentally ingest PCBs, stillbirth or infant skin and eye problems may occur. PCBs are a suspect carcinogen. EPA currently classifies PCBs as a Class B2, probable human carcinogen. The PEL-TWA for PCBs with 54 percent chlorine content is 0.5 mg/m^3, while the PEL-TWA for PCBs with 42 percent chlorine is 1 mg/m^3. Skin exposure may contribute significantly to uptake of these chemicals; therefore, all skin exposure should be strictly avoided.

4.1.3 Calcium Hydroxide and Sodium Hydroxide

The Peel Away 1 chemical paint stripper contains calcium hydroxide and sodium hydroxide at concentrations of 21 and 16%, respectively. These compounds are strong oxidizers and may cause severe burns to the eyes and skin on direct contact and respiratory irritation on inhalation. The PEL-TWA for calcium hydroxide is 5 mg/m3 and the PEL for sodium hydroxide is 2 mg/m3.

4.1.4 Titanium Dioxide

Titanium dioxide is present at 1 to 5% in the Smart Strip chemical paint stripper. Symptoms of titanium dioxide exposure include "dusty lung", spitting, and coughing. Titanium dioxide has a PEL-TWA of 15 mg/m3.

4.1.5 Nickel

Typical chemical analysis for the Green Diamond Nickel Slag abrasive grit indicates a total nickel concentration of 575 mg/kg. Exposure to nickel containing dust can cause skin sensitivity, chest pain, and asthma. 5% in the Smart Strip chemical paint stripper. Titanium dioxide has a PEL-TWA of 15 mg/m3.

4.1.6 Other Chemicals

The Smart Strip chemical paint stripping product contains an unknown propriety ingredient at a concentration of 30 to 50%. The MSDS lists an American Industrial Hygiene Association (AIHA) Workplace Environmental Exposure Limits (WEEL) exposure TWA of 10 parts per million for this chemical. Refer to the Smart Strip MSDS in Attachment 1 for exposure symptoms.

4.1.7 Hazard Communication

In order to comply with OSHA Hazard Communication Standard (HCS) described in 29 CFR1910.1200 (OSHA, 2005e), the following shall apply to all commercial products containing hazardous substances that are brought on-site:

- Material Safety Data Sheets (MSDSs) will be maintained by the contractor at the site for each hazardous product used onsite.
- All containers not supplied with adequate hazard labeling shall have a hazard communication label affixed to the container displaying the health and physical hazards of the material.
- Employees working with hazardous substances shall be trained in accordance with the requirements of 29 CFR 1910.1200.
- An inventory of all hazardous substances used on-site will be maintained.
- Personnel, including contractors using hazardous substances, shall be informed of the hazards and the location of appropriate MSDSs.

4.2 Physical Hazards

Physical hazards associated with site activities include slips, trips, and falls, heavy lifting, use of tools and equipment, noise, electrical and flammability hazards, heat stress, and cold stress.

4.2.1 Slips, Trips, and Falls

Hazards from slips, trips, and falls will be minimized by continuously maintaining the work areas in a neat and orderly manner. Lack of sufficient workspace and storage capacity leads to the potential for accidents and decreases efficiency. Hoses and extension cords will be deployed so they do not present tripping hazards, and are not subject to contact with moisture or physical stress. Where possible they should be hung overhead with non-conductive material and kept away from walkways, doors, stairs, and ladders. Protruding pipes, anchor bolts, or other tripping hazards will be protected or conspicuously marked. Walkways, aisles, stairways, and passageways will be kept in clear and unobstructed condition.

4.2.2 Heavy Lifting

Equipment must be lifted and carried, and 55-gallon drums must be moved. Back strain can result if lifting is done improperly. During any manual handling tasks, personnel should lift with the load supported by their legs, not their backs. For heavy loads, an adequate number of people, or if possible, a mechanical lifting/handling device, will be used. For drums a drum dolly will be used.

4.2.3 Use of Tools and Equipment

Any equipment, including vehicles, winches or other machinery will be operated in strict compliance with the manufacturer's instructions, specifications, and limitations as well as any applicable regulations. The operator is responsible for inspecting the equipment daily to ensure that it is functioning properly and safely. This inspection will include all pins, pulleys, and connections subject to faster than normal wear and all lubrication points.

When equipment with moving booms, arms, or masts are operated in the vicinity of overhead hazards, the operator, with assistance from the designated signaling person, will ensure that the moving parts of the equipment maintain safe clearances to the hazards. Equipment will be kept at least 20 feet away from energized electrical lines.

All portable equipment and tools will be inspected prior to each day's use and as often as necessary to ensure that it is safe to use. Defective equipment and tools will be removed from service immediately. Examples of defective tools include:

- Hooks and chains stretched beyond allowable deformations.
- Cables and ropes with more than the allowable number of broken strands.
- Missing grounding prongs on power tools.
- Defective on/off switches.
- Mushroomed heads of impact tools.
- Sprung wrench jaws.
- Missing or broken handles or guards as well as wooden handles which are cracked, splintered, or loose.

All equipment and tools will be used within their rated capacities and capabilities.

4.2.4 Noise

Hearing protection should be worn during operations that produce significant noise exposures. If you cannot hold a conversation using a normal voice with someone within 3 feet of you because of background noise, the use of personal hearing

protection is recommended. During noisy activities, you may not notice vehicles or equipment approaching your positions. Keep aware of what is happening around you.

4.2.5 Electrical and Flammability Hazards

Due to the nature of this project, the hazards associated with flammability are expected to be low. However, the following good management practices shall apply at the site.

All electrical equipment used during the project will be inspected to ensure that it is in good repair and has no frayed or loose connections before use on site. Only approved, listed equipment and components will be used. All connections will be made in accordance with National Electric Code practices. All equipment and devices so designed will be properly grounded or bonded to an adequate grounding mechanism. Although explosive limits are not expected, only equipment listed as explosion proof will be used in areas where explosivity is sustained at or above 5 percent of the lower explosive limit.

4.2.6 Heat Stress Concerns

Heat stress is the combination of both environmental and physical work factors that contribute to the total heat load imposed on the body. Environmental factors that contribute to heat stress include air temperature, radiant heat exchange, air movement, and humidity.

The body's response to heat stress is reflected in the degree of symptoms. When the stress is excessive for the exposed individual, a feeling of discomfort or distress may result and a heat-related disorder may ensue. The severity of the response will depend not only on the magnitude of the prevailing stress, but also on the age, physical fitness, degree of acclimatization, and dehydration of the worker.

Heat stress is a general term used to describe one or more of the following heat-related disabilities and illnesses.

- Heat Cramps. Painful, intermittent spasms of the voluntary muscles following hard physical work in a hot environment. Cramps usually occur after heavy sweating and often begin at the end of a work shift.

- Heat exhaustion. Profuse sweating, weakness, rapid pulse, dizziness, nausea, and headache. The skin is cool and sometimes pale and clammy with sweat. Body temperature is normal or subnormal. Nausea, vomiting, and unconsciousness may occur.

- Heat Stroke. Sweating is diminished or absent. The skin is hot, dry, and flushed. Increased body temperature, if uncontrolled, may lead to delirium, convulsions, coma, and even death. Medical attention is needed immediately.

Workers will be trained on the signs and symptoms of the forms of heat stress and will be encouraged to monitor themselves and others. In addition, experience has shown that the following work/rest regimen is appropriate for field workers performing various degrees of work while wearing Level D (no protective clothing). All values are given in degrees centigrade (°C):

	Work Load		
Work/Rest Regimen	**Light**	**Moderate**	**Heavy**
Continuous Work	30.0	26.7	25.0
75% work/25% rest each hour	30.6	28.0	25.9
50% work/50% rest each hour	31.4	29.4	27.9
25% work/75% rest each hour	32.2	31.1	30.0

The workload classes are defined in The American Conference of Governmental Industrial Hygienists booklet, "Threshold Limit Values and Biological Exposure Indices for 1991-1992."

4.2.7 Cold Stress Concerns

Fatal exposures to cold among workers have almost always resulted from accidental exposures involving failure to escape from low environmental air temperatures or from immersion in low temperature water. Cold stress (hypothermia) and cold injury can be avoided by preventing a fall in the deep core temperature of the body.

Symptoms of hypothermia include increases in metabolic rate in an attempt to compensate for the heat loss and shivering. Workers should be protected from exposure to cold so that the deep core temperature does not fall below 36°C (96.8 degrees Fahrenheit (°F)). Lower body temperatures can result in reduced mental alertness, reduction in rational decision making, or loss of consciousness with the threat of fatal consequences.

Pain in the extremities may be the first early warning of danger to cold stress. During exposure to cold, maximum severe shivering develops when the body's temperature has fallen to 35° C (95°F). Exposure to cold shall be immediately terminated for any worker when severe shivering becomes evident.

The body must be protected from exposure to cold air temperatures via whole body protection:

- Adequate insulating clothing must be provided to workers if work is performed in air temperatures below 40°F.
- Older workers or workers with circulatory problems must be provided with extra insulating clothing and/or a reduction in the duration of exposure.
- Gloves shall be used by all workers if the air temperature falls below 40°F.

To prevent frostbite, workers should wear insulating gloves when contact with cold surfaces below 20°F is possible. Mittens are required if the air temperature falls below 0°F. If insulating clothing is not adequate to prevent sensations of excessive cold or frostbite, auxiliary heaters or suspension of work is required.

Section 5
General Safe Work Procedures

5.1 Specific Task Descriptions

Specific work tasks consist of pressure washing, abrasive blasting, and chemical treatment.

5.1.1 Pressure Washer Operation

When using a pressure washer, always follow the safety instructions included in the owner's manual. The following operational risks are associated with pressure washer operation.

- The strong spray from a pressure washer can cause serious wounds that might first appear minor. Wounds that appear minor can cause a person to delay treatment, increasing risk for infection, disability or amputation.
- The fast, strong spray can throw objects that strike and injure others who are close by.
- Electric shock can occur if the pressure washer is not used properly and if safety instructions are not followed.
- Using small, gasoline-powered engines can cause carbon monoxide poisoning. Workers should not use any equipment powered by gasoline engines inside buildings or other partially enclosed spaces unless the gasoline engine can be placed outdoors and away from air intakes.

The following precautions will be taken during pressure washer operation.

- Never point a pressure washer at yourself or others.
- Never attempt to push or move objects with spray from the washer.
- Never use a gasoline powered washer in an enclosed space.
- Always test the ground fault circuit interrupter (circuit breaker or outlet) before using a pressure washer.
- Always plug a properly grounded pressure washer into a properly grounded receptacle.
- If an extension cord must be used, keep the pressure washer's power cord connection out of any standing water, and use a heavy duty extension cord with components rated for use in wet locations. Keep both the power cord and extension cord connections as far away as possible from the item being washed and away from any water runoff.

- Wear rubber-soled shoes that provide some insulation when using the pressure washer.
- Never cut or splice the pressure washer's power cord or extension cords.
- Never remove the grounding prong from the pressure washer's power cord plug or the extension cord.
- Always have a qualified electrician check the pressure washer for electrical problems after it has tripped a circuit breaker.
- Never allow children to operate a pressure washer. Keep children at a safe distance when an adult is using a pressure washer.

Persons who have high pressure spray wounds are urged to get medical attention as soon as possible. A medical professional might X-Ray the injured area, provide a tetanus shot and antibiotics, or make a referral to a specialist.

5.1.2 Abrasive Blasting

Risks associated with abrasive blasting include inhalation of dust, exposure to toxic chemicals, high noise levels, and a range of other safety and health hazards. Helpers and operators in the vicinity of the work area require special training and engineering controls to conduct the procedure safely.

A supplied air respirator will be used by the operator of the abrasive blasting equipment. Properly fitting air-purifying respirators with HEPA particulate filters may be used for short, intermittent, or occasional dust exposures during clean-up, dumping of dust collectors, or unloading shipments of abrasives. Personnel using respirators will be required to provide documentation of a respirator fit test performed within the last year. Operators will be equipped with heavy canvas or leather gloves, and aprons or equivalent protection against impact of abrasives. Abrasive blasting hoods will be inspected for defects and in good condition before use. Foot protection will be worn where heavy pieces of work are handled. Hearing protection will be used by workers in close proximity to abrasive blasting operations. Hearing protection selected will be compatible with other personal protective equipment worn.

For this pilot test, abrasive blasting will be conducted inside an enclosure that is kept under negative pressure, and a high efficiency particulate air (HEPA) filter will be used for discharged air. The enclosure will have sufficient exhaust ventilation to: (1) prevent a buildup of dust-laden air and reduce the concentrations of hazardous air contaminants; (2) increase operator visibility; and (3) prevent any leakage of dust to the outside. The exhaust ventilation system will be constructed, installed, inspected, and maintained according to the OSHA Ventilation standard for abrasive blasting. (29 CFR 1910.94(a)) The exhaust air from blast-cleaning equipment will be discharged to the outside through an appropriate dust collector to protect the workplace, the

environment and the surrounding community from hazardous air contaminants. The dust collector will be set up so that the accumulated dust can be emptied and removed without contaminating the work area.

Eating, drinking, and smoking will be prohibited in areas where blasting is performed. Employees will wash their face and hands before eating, drinking or smoking. Dust accumulates in the eyebrows. Care should be taken to remove debris to prevent contaminants from entering the eyes.

An exclusion zone will be used to protect workers and others in the vicinity from exposure to elevated levels of hazardous air contaminants. The exclusion zone will encompass a temporary enclosure and will be posted with appropriate warning signs and restricted to those workers wearing respiratory protection.

Potential exposure to dust and air contaminants is the primary health hazard associated with abrasive blasting. Abrasive blasting can generate large quantities of dust that can contain high levels of toxic air contaminants. The source of the air contaminants includes the base material being blasted, the paint being removed, the abrasive being used, and any abrasive contamination from previous blasting operations. This means that workers can have exposures to multiple air contaminants from both the abrasive and the surface being blasted. Potential air contaminants that might be associated with abrasive blasting at Building 13 include lead, PCBs, silica, nickel, and barium.

Abrasive blast equipment will be inspected before use. All fittings and hoses will be in good condition and tightly attached. Compressors will deliver the volume and pressure of air required to perform work effectively and safely. Oil-lubricated compressors will have an overheat sensor or carbon monoxide sensor if a respirator (other than air-supplied) is used in poorly ventilated areas. A regulator valve will be used at the compressor, set to manufacturer specifications, to provide adequate air pressure to abrasive blast equipment. The abrasive blast cleaning nozzle will be equipped with an operating valve, which must be held open manually. The air intake will be remotely located from all vehicle/equipment exhaust systems to ensure harmful emissions are not taken into the work area. Contamination of inlet air to the compressor can adversely affect purifier performance. The compressor intake will be located to avoid intake of contaminated air and to ensure air with adequate oxygen content.

Hose length will not exceed 300 feet unless steps are taken to ensure that the respirator input pressure and volume are maintained at the specified value for the respirator used. Larger diameter supply hose from the compressor to the respirator hose manifold can provide higher volume. The simplest method to add length to the low pressure supply line is to provide output pressure higher than the pressure required by the respirator(s), and to provide a regulator at the respirator manifold to control and maintain correct respirator pressure to the respirator. An accurate pressure gauge should be located at the inlet to the respirator hose.

Electric compressors tend to have marginal capacity. Use of airline coolers and heaters (Vortex tubes) are to be avoided, because they cause airline pressure to drop below 6.0 Standard Cubic Feet per Minute (SCFM). At or near 4.0 SCFM, the wearer can aspirate contaminants into the respirator through the face-to-respirator shield. This is especially true during periods of heavy physical activity.

Blast material and debris will be cleaned up by using dust-free methods. Wet clean-up methods and vacuum cleaners with High Efficiency Particulate Air (HEPA) filters will be used for this pilot test.

5.1.3 Chemical Treatment

Several chemicals will be applied to the exterior surface of the building to determine the effectiveness of each chemical in removing paint. Proper personal protection will be identified prior to each application from the Material Safety Data Sheet (MSDS), and the SHO will be consulted to ensure proper protection is achieved.

5.2 Personal Protection Equipment

Initial protection for any personal at the site will be Level D. Level D personal protective equipment consists of the following:

- Full length shirt and long pants.
- Steel toed boots or safety shoes.
- Safety glasses.
- Earplugs.
- Hard hat.

During pressure washing and chemical treatment activities a minimum of Level D protection will be required within the support and contamination reduction zone for all workers. Contractor operators will conduct work within the exclusion zone in Level C protection. Level C protection consists of the all of the Level D protection plus the following:

- Air-purifying respirator equipped with appropriate filter cartridges or air-supplied respirator.
- Chemical resistant clothing (i.e., Tyvek, polycoated Tyvek or Saranax Suits). Suits are to be one-piece with attached hoods and elastic wrist bands.
- Outer chemical resistant gloves and inner latex surgical gloves.
- Chemical resistant overboots.

For abrasive blasting, an air supplied respirator will be used by the operator. Properly fitting air-purifying respirators with Hepa filters may be used for short, intermittent, or occasional dust exposures during clean-up, dumping of dust collectors, or unloading shipments of abrasives. Operators will be equipped with heavy canvas or leather gloves, and aprons or equivalent protection against impact of abrasives. Abrasive blasting hoods will be inspected for defects and in good condition before use. Foot protection will be worn where heavy pieces of work are handled. Hearing protection will be used by workers in close proximity to abrasive blasting operations. Hearing protection selected will be compatible with other personal protective equipment worn.

5.3 Air Monitoring

A respirable dust monitor will be placed outside of the work area or pressure washing and abrasive blasting enclosure to monitor for fugitive dust. Prior to starting work, a background dust concentration will be determined by collecting readings upwind and downwind of the work site. During work activities the following dust monitoring action levels will be implemented:

- 0 to 5 ug/m3 above background - Level D.
- 5 to 50 ug/m3 above background – stop work and adjust negative air system inside the enclosure to reduce dust to below 5 ug/m3 outside the enclosure.

5.4 Work Zones and Decontamination Procedures

Work zones and decontamination procedures will be established in accordance with guidance provided in Chapters 9 and 10 of the NIOSH/OSHA/USCG/USEPA document Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. The exclusion zone shall include the enclosure placed around the pressure washing or abrasive blasting test site or a 20 foot wide area centered on the chemical treatment site, extending out 20 feet from the wall of Building 13. The contamination reduction zone will be a 10 foot margin at the perimeter of the exclusion zone. The support zone is the outermost area at the outer edge of the contamination reduction zone and is considered a non-contaminated area. The field operations command post, first aid station, and any other investigation support activities are located in the support zone. Potentially contaminated equipment is not allowed in this area.

The exclusion zones will be marked with yellow caution tape and traffic barricades. Proposed work zones are shown in Figure 1-1. A wash/rinse station will be placed in the contamination/reduction zone to facilitate cleaning and removal of PPE. The wash/rinse stations will be used by workers to clean and rinse boots and gloves. The ground beneath these basins will be covered with plastic to ensure the ground is not contaminated with basin rinse water. A drum or other container will be designated to dispose of PPE that will not be reused.

It is expected that the highest level of protection used during pilot test activities will be Level B. Sited on the level of expected exposure to chemical constituents, the following decontamination protocol will be used:

- Station 1: Equipment Drop - Deposit equipment used on site (e.g., tools, sampling devices and containers, monitoring instruments, radios, and clipboards) on plastic drop cloths. Segregation at the drop reduces the probability of cross-contamination. During hot weather operations, a cool down station may be set up within this area.

- Station 2: Outer Garment, Boots, and Gloves Wash and Rinse - Scrub outer boots and gloves, and splash suit with decontaminating solution or detergent water. Rinse off using copious amounts of water.

- Station 3: Outer Boot and Glove Removal - Remove outer boots and gloves. Deposit in container with plastic liner.

- Station 4: Canister or Mask Change - If worker leaves exclusion zone to change canister (or mask) this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot covers are donned, joints are taped, and worker returns to duty.

- Station 5: Boots, Gloves, and Outer Garment Removal - Boots, chemical-resistant splash suit, and inner gloves are removed and deposited in separate containers lined with plastic.

- Station 6: Face Piece Removal - Face piece is removed. Avoid touching face with fingers. Face piece is deposited on plastic sheet.

- Station 7: Field Wash - Hands and face are thoroughly washed. Shower if body contamination is suspected.

All personnel must follow the appropriate order for cleansing and removal during decontamination: boots, outer gloves, coveralls or protective suit, respirators, and inner gloves. Direct contact with contaminated PPE can be avoided by a proper decontamination sequence. Respirators, if used, are not to be removed before leaving the contaminated area to avoid a potential inhalation hazard during decontamination.

Water, soap, and paper towels will be available for cleaning of hands and face before breaks, eating, drinking, or smoking. On-site toilet facilities will also be available.

5.5 General Safety Rules

In addition to the specific requirements of this SSHP, common sense should prevail at all times. The following general safety rules and practices will be in effect at the site.

- The site will be suitably marked or barricaded as necessary to prevent unauthorized visitors, but will not hinder emergency services, if needed.

- All open holes, excavations, trenches, and obstacles will be properly barricaded in accordance with local site needs. These needs will be determined by proximity to traffic ways, both pedestrian and vehicular, and obstacle.
- Smoking and ignition sources in the vicinity of flammable or contaminated material is prohibited. Designated smoking areas will be delineated.
- Movement and use of cranes and man lifts, erection of towers, movement of vehicles and equipment, and other activities will be planned and performed with consideration for the location, height, and relative position of aboveground utilities and fixtures, including signs, lights, canopies, buildings, other structures, and construction.
- When working in areas where flammable vapors may be present, particular care must be exercised with tools and equipment that may be sources of ignition. All tools and equipment so provided must be properly bonded and/or grounded.
- Individuals with beards that interfere with dust mask or respirator fit are not allowed within the exclusion zone. This is necessary because all site personnel may be called upon to use protection in some situations, and beards do not allow for proper fit.
- No smoking, eating, or drinking will be allowed in the contaminated areas.
- Tools and hands must be kept away from the face.
- Personnel must shower at the end of the shift or as soon as possible after leaving the site.
- Persons with long hair and/or loose-fitting clothing that could become entangled in power equipment are not permitted in the work area.
- Horseplay is prohibited in the work area. The SHO has the authority to discharge site personnel for horseplay.
- Work while under the influence of intoxicants, narcotics, or controlled substances is prohibited.

Prior to the commencement of each day's activities, the SHO will conduct a daily tailgate safety meeting outlining new or potential hazards that may be encountered during site operations. The daily tailgate safety meetings will be documented by completion of the appropriate form located in the Attachment to this document.

Section 6
Emergency Response/Accident Investigation

The phone numbers of the police and fire departments, ambulance services, local hospital, and project representatives are provided in the reference sheet at the front of this SSHP. Directions to the hospital are also provided on the sheet.

In the event of a health or safety emergency at the site, appropriate emergency measures will immediately be taken to assist those who have been injured or exposed and to protect others from hazards. The SHO will be immediately notified and will respond according to the seriousness of the injury. Personnel trained in first aid will be present during site activities to provide appropriate treatment of injuries or illnesses incurred during operations. The Project/Site Manager will be immediately informed of any serious injuries.

Any accident/incident resulting in an OSHA recordable injury or illness, treatment at a hospital or physician's office, property damage or a near miss accident requires that an accident/incident report be completed and submitted to the SHO. The investigation will be initiated as soon as emergency conditions are under control. The purpose of this investigation is not to attribute blame but to determine the pertinent facts so that repeat or similar occurrences can be avoided.

6.1 Planning

Prior to facility entrance, the SHO will plan emergency actions and discuss them with personnel conducting project work. Initial planning includes establishing the best means for evacuation from the area in case of a catastrophe.

6.2 Emergency Services

A tested system must exist for rapid and clear distress communications, preferably voice, from all personnel to the SHO. The SHO will ensure that all personnel working at the facility know how to communicate with the appropriate local emergency response units as well as provide adequate and clear directions between work locations and the locations of support personnel, prior to commencing any facility investigation or operations. Emergency response contacts and telephone numbers are included in the emergency reference sheet. A copy of this information must be posted in a visible location at the project site before operations commence.

6.3 First Aid

Qualified personnel on site will give first aid and stabilize any worker needing assistance. Life support techniques such as cardiopulmonary resuscitation and treatment of life-threatening problems such as bleeding, airway maintenance, and shock will be given top priority. Professional medical assistance will be obtained at

the earliest possible opportunity. If assistance beyond first aid is required, phone 911, and request emergency medical assistance.

A first aid kit and emergency 16-ounce eye wash station will be maintained readily accessible to all workers. The portable eyewash will be supplemented by a nearby continuous-flowing eyewash facility. Prior arrangements must be made to facilitate easy access (preferably within 10 seconds of the work area) to this continuous-flowing device.

Emergency first aid for organic compounds follows below.

6.4.1 Eyes

Flush eyes immediately with fresh water for at least 15 minutes while holding the eyelids open. If injury occurs or irritation persists, then transport person to emergency room as soon as possible.

6.4.2 Skin

Wash skin thoroughly with soap and water. See a doctor if any unusual signs or symptoms or skin irritation occurs. Launder chemically-impacted clothing.

6.4.3 Inhalation

Move exposed person to fresh air. If breathing has stopped, apply artificial respiration. Call 911 immediately.

6.4.4 Ingestion

If swallowed, DO NOT make person vomit. Call Poison Control Center immediately.

6.5 Fire Protection and Response

Call 911 in the event of any fire at a work location. A minimum of one fire extinguisher with a minimum class rating of 20BC will be provided within 50 feet of the site activities.

6.6 Site Control Measures

The site control measures listed below are to be followed to minimize the potential contamination of workers, protect the public from potential site hazards, and control site access.

Barricades and barricade tape will be used to delineate an exclusion zone around work areas. An opening in the barricades away from the equipment will serve as an entry and exit point. A personnel decontamination station will be established at this point. All access to the work location will be made at the entry and exit point.

The site will be barricaded or otherwise made secure at the end of each workday. Paint chip residue will be placed in 55-gallon barrels, labeled and dated, and moved to a secure location. Decontamination fluids will be drummed and properly labeled.

The SHO will log all site visitors in the field notebook and will ensure that all personnel entering the work zone are briefed on site activities and potential hazards.

6.7 Emergency Operation Shutdown Procedures

In the event a dangerous situation develops on site, the SHO may temporarily suspend operations until the situation is corrected or controlled. The SHO will have the authority to restart operations when the situation has been corrected and safe working conditions have been restored.

6.8 Spill or hazardous Material Release

Spills or hazardous material releases resulting in human exposure or off-site environmental contamination are reported to the appropriate authorities by the SHO. Small spills are reported to the SHO and are taken care of per the chemical manufactures' recommended procedures.

6.9 Community Safety

Release or off-site migration of contaminants during field operations is unlikely. However, in the event of a significant release of contaminants during field work, the proper state and local authorities will be immediately notified. Appropriate actions will be taken to protect the public and control the contaminant release or migration.

Section 7
References

Farallon Consulting. 2004. *Phase I Environmental Site Assessment, Former Rainier Brewery, 3100 Airport Way South, Seattle, Washington.* April 14.

Vernon Environmental, Inc. 2006. *Lead Based Paint Building Survey Report. Former Rainier Brewery 3100 Airport Way, Seattle, Washington, King County.* November 20.

Vernon Environmental, Inc. 2007. *PCB Based Paint building Operation & Maintenance Plan, Former Rainier Brewery, 3100 Airport Way, Seattle, Washington 98134.* January.

Vernon Environmental, Inc. 2008. *Catch Basin Sediment Field Sampling Results Report (Split Sampling Between Rainier Commons, Seattle Public Utility and King County), Former Rainier Brewery Property, 3100 Airport Way, Seattle, Washington, King County.* July 14.

Attachment 1
Material Safety Data Sheets and Chemical Information

CDM

Material Safety Data Sheet

Date last reviewed: January 1, 2008

I. General Information

Chemical Name & Synonyms Proprietary Blend	Trade Name & Synonyms Peel Away 1
Chemical Family Alkaline	Formula Mixture
Proper DOT Shipping Name Containers 2.2 lbs. (1 kg) or smaller: ORM-D Containers greater than 2.2 lbs. (1 kg): Sodium Hydroxide Solid Mixture, 8, UN1823, PGII	DOT Hazard Classification Class 8, PGII (Corrosive Material)
Manufacturer Dumond Chemicals, Inc.	Manufacturer's Phone Number (212) 869-6350
Manufacturer's Address 1501 Broadway, New York, NY 10036	Emergency Number: (800) 457-4280

II. Ingredients

Principal Hazardous Components	CAS #	Percent	PEL	TLV
Calcium Hydroxide	1305-62-0	21	5 mg/m^3 TWA (respirable fraction)	5 mg/m^3 TWA
Magnesium Hydroxide	1309-42-8	16	None Established	None Established
Sodium Hydroxide	1310-73-2	9	2 mg/m^3 TWA	2 mg/m^3 Ceiling
Non-hazardous Ingredients	N/A	Balance	None Established	None Established

SARA 313: This product contains no chemicals that are regulated under SARA Title III, section 313.

III. Physical Data

Boiling Point (°F) Greater than 212	Specific Gravity (H_20 =1) 1.33
Vapor Pressure (mm Hg) @ 20°C same as water	Percent Volatile by Volume (%) 51.5
Vapor Density (Air=1) same as water	Evaporation Rate (Butyl Acetate =1) same as water
Solubility in Water Complete	pH 13
Appearance & Odor White paste, no odor.	

IV. Fire & Explosion Hazard Data

Flash Point (Test Method None	Autoignition Temperature None	
Flammable Limits None	LEL N/A	UEL N/A
Extinguishing Media This material is not combustible. Use media appropriate for the surrounding fire.		
Special Fire Fighting Procedures Wear full emergency equipment and NIOSH approved positive pressure SCBA. Cool containers with water.		
Unusual Fire & Explosion Hazards At elevated temperatures containers may rupture. Contents are corrosive. All personal contact should be avoided.		

HMIS Ratings	Health: 3	Flammability: 0	Reactivity: 0

V. Health Hazard Data

OSHA Permissible Exposure Limit	ACGIH Threshold Limit Value
See Section II	See Section II
Carcinogen - NTP Program	Carcinogen - IARC
No	No

Symptoms of Exposure
Acute Effects: Eyes: May cause severe burns with possible permanent damage. Skin: May cause chemical burns with reddening and pain. Inhalation: May cause eye and respiratory irritation. Ingestion: May cause burns to mouth and gastrointestinal corrosion.
Chronic Effects: Repeated skin contact with dilute solutions or mists may cause dermatitis.

Medical Conditions Aggravated By Exposure:
Individuals with chronic respiratory or skin diseases may be at risk from exposure.

Primary Route(s) of Entry
Eye, skin, ingestion

Emergency First Aid
Eye: Flush with water for 30 minutes. Get immediate medical attention. Skin: Flush thoroughly w/water for 15 minutes. Remove contaminated clothing. Get medical attention for irritation. Inhalation: Remove to fresh air. Get immediate medical attention. Ingestion: If conscious, give water or milk. Do not induce vomiting. Get immediate medical attention.

IV. Reactivity Data

Stability		Unstable	Conditions to Avoid
	X	Stable	N/A

Incompatibility
Acids, flammable liquids, organic halogens, nitromethane and metals such as aluminum, tin or zinc.

Hazardous		May Occur	Conditions to Avoid
Polymerization	X	Will Not Occur	N/A

Hazardous Decomposition
None known.

VII. Environmental Protection Procedures

Spill Response
Wear appropriate protective clothing. Collect into closable containers. Wash spill area with water. Prevent runoff from entering sewers or waterways. Report spills as required.

Waste Disposal Method
Dispose of in accordance with all state, local and federal regulations.

VIII. Special Protection Information

Eye Protection	Skin Protection
Chemical safety goggles/Faceshield	Rubber or neoprene gloves
Respiratory Protection (Specific Type)	Ventilation Recommended
For spray application, wear a NIOSH approved dus respirator & eye protection.	None normally required. If exposure limits are exceeded, local exhaust may be required.

Other Protection
Impervious apron, boots, safety shower, eye wash as needed.

IX. Special Precautions

Hygienic Practices in Handling & Storage
Store in a cool, well ventilated area away from acids and other incompatible substances.

Work Practices
Prevent eye and skin contact. Do not breathe mists or aerosols.

Other Precautions
Use only with appropriate protective equipment. Wash thoroughly after use.

Material Safety Data Sheet

Date last reviewed: January 1, 2008

I. General Information

Chemical Name & Synonyms Proprietary Mixture	Trade Name & Synonyms Smart Strip
Chemical Family Organic Solvent Mixture	Formula Mixture
Proper DOT Shipping Name Not Regulated	DOT Hazard Classification Not Regulated
Manufacturer Dumond Chemicals, Inc.	Manufacturer's Phone Number (212) 869-6350
Manufacturer's Address 1501 Broadway, New York, NY 10036	Emergency Number: (800) 457-4280

II. Ingredients

Principal Hazardous Components	CAS #	%	PEL	TLV	Other
Proprietary Ingredient	Proprietary	30-50	None Established	None Established	10 ppm TWA AIHA WEEL
Titanium Dioxide	13463-67-7	1-5	15 mg/m3 TWA	10 mg/m3 TWA	
Non-hazardous Ingredients	Proprietary	1-5	None Established	None Established	
Water	7732-18-5	40-60	None Established	None Established	

III. Physical Data

Boiling Point (°F) Not available	Specific Gravity (H_20 =1) 1.14	
Vapor Pressure (mm Hg @ 30°C) 0.1	Percent Volatile by Volume (%) 50%	
Vapor Density (Air=1) 3-4	Evaporation Rate (Butyl Acetate =1) Less than 1	
Solubility in Water Partial	pH Neutral	VOC 0%
Appearance & Odor White viscous liquid with a faint, aromatic odor.		

IV. Fire & Explosion Hazard Data

Flash Point (Test Method) None	Autoignition Temperature Not available	
Flammable Limits	LEL Not available	UEL Not available
Extinguishing Media Water spray or fog, foam, carbon dioxide, dry chemical.		
Special Fire Fighting Procedures Wear full emergency equipment and NIOSH approved positive pressure SCBA. Cool fire exposed containers with water.		
Unusual Fire & Explosion Hazards At elevated temperatures containers may rupture. Decomposition products may be hazardous.		

HMIS Ratings	Health: 2	Flammability: 1	Reactivity: 0

V. Health Hazard Data

OSHA Permissible Exposure Limit See Section II	ACGIH Threshold Limit Value See Section II
Carcinogen - NTP Program No	Carcinogen - IARC No

Symptoms of Exposure
Acute Effects: Eyes: Vapors may cause irritation. Direct contact may cause severe irritation with possible corneal damage. Skin: May cause irritation with dermatitis. Contact areas may become numbness. Prolonged contact may cause absorption with symptoms similar to inhalation. . Inhalation: Vapors may cause irritation to upper respiratory tract. High concentrations may cause headache, coughing, difficulty in breathing, low blood pressure, fatigue, nausea and vomiting. Severe cases may cause respiratory and muscular paralysis, convulsions, narcosis and death. Ingestion: May cause gastrointestinal irritation, abdominal pain, headache, central nervous system depression, nausea, vomiting, diarrhea, low blood pressure and fatigue. Severe cases may cause symptoms similar to inhalation. Possible aspiration hazard. May cause mild to severe lung injury if aspirated into the lung during vomiting or swallowing. Chronic Effects: Repeated skin contact may cause dermatitis.
Medical Conditions Aggravated By Exposure: Individuals with chronic respiratory or skin diseases may be at risk from exposure.
Primary Route(s) of Entry Eye, skin, inhalation, ingestion
Emergency First Aid Eye: Immediately flush eyes with water for 15 minutes. Get immediate medical attention. Skin: Wash thoroughly w/soap & water. Remove contaminated clothing. Get medical attention if irritation develops. Inhalation: Remove to fresh air. Restore breathing. Get immediate medical attention. Ingestion: If conscious, give 2 glasses of water. Do not induce vomiting. Get immediate medical attention. Never give anything by mouth to a person who is unconscious or convulsing.

IV. Reactivity Data

Stability	X	Unstable Stable	Conditions to Avoid N/A
Incompatibility Strong acids, bases, strong oxidizers and reducing agents.			
Hazardous Polymerization	X	May Occur Will Not Occur	Conditions to Avoid N/A
Hazardous Decomposition Thermal decomposition - carbon dioxide and carbon monoxide, oxides of nitrogen. May oxidize with air to form benzaldehyde and benzoic acid.			

VII. Environmental Protection Procedures

Spill Response Wear appropriate protective clothing. Remove all sources of ignition. Collect with an inert absorbent. Wash spill area with water. Prevent runoff from entering sewers or waterways. Report spills as required.
Waste Disposal Method Dispose of in accordance with all state, local and federal regulations.

VIII. Special Protection Information

Eye Protection Chemical safety goggles/faceshield	Skin Protection Butyl rubber gloves required.
Respiratory Protection (Specific Type) For spray application, a NIOSH approved organic vapor respirator with N95 particulate filter.	Ventilation Recommended Good general ventilation is usually adequate. If exposure limits are exceeded, local exhaust may be required.
Other Protection Impervious apron, boots, safety shower, eye wash as needed.	

IX. Special Precautions

Hygienic Practices in Handling & Storage Store in a cool, well ventilated area away from oxidizers and other incompatible substances.
Work Practices Avoid contact with eyes, skin and clothing. Avoid breathing vapors or mists. Wash thoroughly after handling.
Other Precautions Use with appropriate protective equipment. Empty containers retain residue and may be hazardous.

PEEL AWAY® st-1
by DUMOND
Steel-surface paint remover

DUMOND

Peel Away® st-1 Steel-Surface Paint Remover

1. ***Product Description & Use:*** Peel Away®ST-1 is a water based, high viscosity alkaline paste, providing high build and high adhesion characteristics, that is specifically formulated for the removal of lead-based paint and/or other coatings from steel structures including water and other storage tanks, bridges, etc. This product contains no toxic or flammable solvents. In most cases, a single application of Peel Away®ST-1 will remove multiple layers of old paint. Apply Peel Away®ST-1 by trowel or spray; it adheres quickly and will cling to vertical, horizontal and overhead surfaces. Its self-sealing characteristic allows Peel Away®ST-1 to remain moist and continue working throughout the removal process, without requiring any cover.

2. *Features & Benefits*
   - One application will removes lead-based and oil-based paints and coatings from steel structures
   - Self-sealing paste controls dispersal of lead dust during removal process
   - Non-toxic, water-based, biodegradable formula does not include methylene chloride or flammable solvents
   - High build, high adhesion characteristics increase adhesion to vertical, horizontal and overhead surfaces

3. ***Limitations:*** Product efficiency is reduced below temperature of 40°F. Ideal ambient conditions are temperatures above 50°F, with high relative humidity. An alkaline product, Peel Away®ST-1 will not work on epoxies, urethanes, chlorinated rubber, or other chemically resistant coatings. (Peel Away® 7 is recommended for removing epoxies, urethanes, chlorinated rubber, and other chemically resistant coatings.)

4. ***Test Patch:*** Always prepare a test area on each type of surface and paint coating prior to full application. Testing before beginning the project is the best way to determine how thickly to apply Peel Away®ST-1 to ensure a complete strip with one application, and how long it must remain in place (dwell time) before removing. Applying the paste too thickly or unevenly, or, removing it too quickly, may result in need for more than one application, increasing your labor and material costs.

5. ***Preparation:*** Cover and protect areas where stripping is not desired, including adjoining surfaces where overspray may travel. Polyethylene and masking tape create an effective barrier. Plants and other foliage should be covered during application. Proper job site preparation will ensure that all chemical stripper residues will be contained in accordance with local and federal guidelines applying to lead-based paint. Generally, job sites where Peel Away®ST-1 is used require only that spent residues not contact with ground or water. For general guidelines covering chemical stripping containment, consult Steel Structures Painting Council Guide 6.

6. ***Application & Spread Rate:*** Peel Away®ST-1 can be hand-trowelled or sprayed using a GRACO King or President airspray pump adapted for this product. Patch test results will determine how thickly to apply this product to ensure that a single application will completely remove old coatings. Dwell time is generally between 12 to 24 hours, depending on test patch results. Peel Away®ST-1 provides an average spread rate of 20 – 25 square feet per gallon at 0.060 inch wet film thickness; results may vary.

7. ***Removal:*** Peel Away®ST-1 residues are generally removed using broadknives for bulk removal, followed by a low pressure, low volume rinse using an airless paint pump, with a 0.018-0.021 inch tip, assuring that liquid waste will be minimized. Direct residues to containment surfaces for collection before disposal. Follow all appropriate guidelines for residue/waste collection and disposal. Alternate removal processes such as Ice Blast or CO2 blasting may be used if applicable. Pressure washing is not recommended as it produces a greater volume of liquid waste, which may contain lead.

8. *Clean Up:* Test Peel Away®ST-1 residue/waste for hazardous materials before disposing; test results will determine disposal process. After testing, follow appropriate federal, state and local disposal guidelines.

9. *Surface Preparation before repainting:* Steel surfaces stripped with Peel Away®ST-1 will generally exhibit some degree of alkalinity, and may require an additional water rinse, or rinsing with Peel Away® Neutralizer, may be required based on paint manufacturer recommendations. In addition, an SSPC SP-6 or SP-7 blast may be required prior to painting, again based on painting requirements. When working with previously profiled steel surfaces, surface tolerant coatings can be used, thereby eliminating any subsequent abrasive blasting. In any case, always verify surface pH before recoating.

10. *Availability & Cost:* Peel Away® products are available through a nationwide network of paint and hardware stores, and construction and safety supply distributors. For outlet nearest you, call 800-245-1191 or email plaway@aol.com. Cost will vary depending upon conditions and number of coats to be removed. Peel Away®ST-1 provides an average coverage rate of 20 – 25 square feet per gallon at 0.060 inch wet film thickness.

11. *Precautions & Safety Requirements:* Wear long rubber or latex gloves, and face shield or goggles. Wear suitable protective clothing if removing with a pressure washer. Wear a carbon filter mask or its equivalent when working in a confined area. Follow manufacturer instructions when spraying.

12. *Warranty:* Dumond Chemicals, Inc. warrants all of its products to be free from defects, and makes no other warranties with respect to its products. Express or implied, including without limitation the implied warranties of MERCHANTABILITY OF FITNESS FOR PARTICULAR PURPOSE. Dumond Chemicals, Inc. liability shall be limited in all events to supplying sufficient products to re-treat the specific areas to which defective product has been applied. Dumond Chemicals, Inc. shall have no other liability, including liability for incidental, consequential or resultant damages whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives or Dumond Chemicals, Inc. or its distributors, and dealers.

13. *Technical Services:* Dumond's expert staff is available to answer technical questions and provide product-specific information required by architects, specifiers, contractors and property owners. Expert, on-site assistance is available at no additional cost. Call 800-245-1191 or email plaway@aol.com with product or technical questions.

Technical Data

Physical Form:	Blue Paste
Viscosity:	26.5
Flash Point:	None
VOCs:	None
pH:	13.0

Dumond Chemicals, Inc. 1501 Broadway New York, NY 10036 phone: 212/869-6350 fax: 212/764-5762 email: plaway@aol.com www.dumondchemicals.com

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SMART STRIP™

safe • effective • environmentally friendly

DUMOND

SMART STRIP™ Strips up to 15 Layers in a single application

1. *Product Description & Use:* SMART STRIP™ is a revolutionary paint remover that is safe for the user, the substrate and the environment. It is classified as non-hazardous, is pH neutral, contains no methylene chloride, caustic or V.O.C., and is 100% biodegradable. This water-based stripper is extremely effective for removing multiple layers or architectural and tough industrial coatings from virtually all exterior and interior surfaces – wood, brick, metal, concrete, stone, plaster, fiberglass, etc. SMART STRIP™ is exceptional for lead-based paint removal and for removal of marine coatings without damage to the gel coat. It is excellent for intricate, carved, or molded surfaces. Because it is a paste, it is easily applied by brush, roller, or conventional airless spray. SMART STRIP™ is formulated to remain wet and effective over extended periods of time and does not require the use of Peel Away® Paper. (Peel Away® Paper may be purchased separately when needed.) Dwell time will vary depending on the type of coating, number of layers, and temperature. For best results, allow paste to dwell overnight or longer. Remove softened/lifted paint using a scraper, taping knife, squeegee, or power washer. The stripped surface is then rinsed with water or denatured alcohol to remove remaining residue. Allow surface to dry thoroughly before repainting.

2. *Features & Benefits*
   - Safe: Formulated without methylene chloride, caustic, NMP or any toxic chemicals; will not burn skin.
   - Effective: Removes up to 15 layers of architectural and industrial coatings from any interior/exterior surface in a single application.
   - Environmentally Friendly: Water-based, 100% Biodegradable, Zero VOC, pH neutral; no TAPs or HAPs; no harmful odors or fumes.
   - Simple: Does not require neutralization or the use of Peel Away® Paper.

3. *Limitations:* For best results, surface temperatures should be 60°F – 95°F. Product can be applied as low as 37°F, however, efficiency/effectiveness are reduced and dwell time increases.

4. *Test Patch:* Always prepare a test area on each type of surface and paint coating prior to full application. Testing before beginning the project is the best way to ensure product suitability. This will also determine the proper thickness of the remover and the dwell time required for project completion.

5. *Preparation:* Mask/protect areas where stripping is not desired, including adjoining surfaces where overspray may travel. Polyethylene (plastic sheets) and masking tape create an effective barrier. Plants and other foliage should be covered or rinsed thoroughly before and during application. NOTE: SMART STRIP™ will not affect glass, aluminum, or plastic surfaces.

6. *Application & Spread Rate:* Using brush, roller or airless spray, apply approximately 1/6" to 1/8" thick (refer to test patch results) according to the age, number of layers, and type of coating being removed. Airless spray is the most cost effective way to apply product. Always start at the lowest pressure setting and slowly build pressure until an adequate fan pattern has been achieved. High pressure is not required or desired. When trying to build film thickness of the remover, two separate applications are recommended. Apply a light first coat and allow it to dwell for about 30 minutes. Then apply a second coat to build the film to the desired thickness. SMART STRIP™ provides an average spread rate of 45 - 50 sq. ft. per gallon; results may vary.

7. *Removal:* Remove softened/lifted paint using a scraper, taping knife, squeegee or power washer. Agitate tough to remove residue with a stiff nylon brush or scouring pad, paying particular attention to crevices, grooves and cracks. Exterior stripped surfaces should be rinsed thoroughly with a power washer. Interior surfaces can be rinsed using a spray bottle or pail, a sponge and water, or denatured alcohol to remove remaining residue.

8. *Clean Up:* Collect remover, paste and paint residue in plastic bags and dispose of in compli-

ance with local government regulations. Do not collect or store removed paint/paste waste in metal containers. Clean up airless sprayer by running water or denatured alcohol through the equipment soon after application has been completed. Allow surface to dry thoroughly before repainting.

9. *Availability & Cost:* SMART STRIP™ and other Peel Away® products are available through a nationwide network of paint and hardware stores, and construction and safety supply distributors. For outlet nearest you, call 800-245-1191 or email plaway@aol.com. Cost will vary depending upon conditions and number of coats to be removed. SMART STRIP™ provides an average coverage rate of 45 – 50 sq. feet per gallon.

10. *Precautions & Safety Requirements:* Precautions & Safety Requirements: Not for internal consumption. While SMART STRIP™ is formulated to be safe for the user, surface and environment, proper safety procedures should be followed at all times when handling this product. Refer to the Material Safety Data Sheet (MSDS) for important health/safety information before handling. NOTE: In case of contact with skin or eyes, wash well with water. If irritation persists, seek medical attention. Keep out of reach of children.

11. *Warranty:* Dumond Chemicals, Inc. warrants all of its products to be free from defects, and makes no other warranties with respect to its products, express or implied, including without limitation the implied warranties of MERCHANTABILITY OF FITNESS FOR PARTICULAR PURPOSE. Dumond Chemicals, Inc. liability shall be limited in all events to supplying sufficient products to re-treat the specific areas to which defective product has been applied. Dumond Chemicals, Inc. shall have no other liability, including liability for incidental, consequential or resultant damages whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives of Dumond Chemicals, Inc. or its distributors, and dealers.

12. *Technical Services:* Dumond's expert staff is available to answer technical questions and provide product-specific information required by architects, specifiers, contractors and property owners. Expert, on-site assistance is available at no additional cost. Call 800-245-1191 or email plaway@aol.com with product or technical questions.

Technical Data

Form:	Paste
Wt./Gal.:	10 pounds
Flash Point:	None
Solid Content:	58.0
VOC:	0

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08.23.05

GREEN DIAMOND
NICKEL SLAG

PRODUCT

TARGET Green Diamond Abrasive Grits are high efficiency blasting grits prepared by selective screening of nickel slag. Three gradations are available to provide materials suitable for most blast cleaning operations. All three grades have a Moh's hardness of 6.5 to 7, giving improved cutting relative to conventional industrial and silica sands. Green Diamond is manufactured by Cominco American for Target Products Ltd.

USES AND ADVANTAGES

- Green Diamond is suitable for most grit blasting operations on metal surfaces. The shapes of the individual particles make this product ideal for the efficient removal of mill scale, rust or existing coatings from steel and other metals in preparation for fabrication or painting.
- The high fracture resistance of Green Diamond, plus the available dust reduction treatment, reduce dust formation and give increased recoverability, improved safety factors and reduced equipment maintenance costs while continuing to provide the required degree of etch.
- The low free silica content (less than 1%) of Green Diamond is a significant factor in situations where the use of silica sand blasting abrasives is not acceptable for environmental or safety reasons.
- Green Diamond is classified in Fisheries and Oceans Canada Report No. 1692 of January 1991 as:
  (a) having moderate to low toxicity to fish, i.e. 96-h LC50 $\geq$ 100 mg/L. (Test value was >66000 mg/L).
  (b) not known to be persistent and not likely to accumulate in animal tissues.

PHYSICAL PROPERTIES

Colour	Green/Grey
Grain Shape	Angular
Bulk Density	85 - 105 lb/ft^3 (1362 - 1682 kg/m^3)
Hardness, Moh	6.5 - 7
Specific Gravity	3.3
Moisture Content	<0.1% weight

CAUTION

Although Green Diamond is able to be used for blasting of concrete or wood surfaces, a test section should be done before proceeding with a project to ensure that the particles of abrasive do not become embedded in the work, causing a darkening of the exposed surfaces. TARGET silica sand or industrial sand abrasives are usually more suitable for such applications.

PACKAGING

Green Diamond 16-36 and 20-50 are available in 36.3 kg (80 lb) or 25 kg (55 lb) paper bags or in bulk bags of approximately 1650 kg (3640 lb) each. Deliveries by pneumatic tank trucks are also available. The 30-60 grade is available only in 36.3 (80 lb) paper bags. Shipments to US destinations can also be made in 100 lb paper bags.

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SAFETY

TARGET Green Diamond Abrasives do not contain any ingredients which require classification under WHMIS regulations. Because of the hazardous nature of abrasive blast cleaning operations and the toxicity of the dusts that can be created when removing certain coatings, all appropriate safety precautions must be followed when using Green Diamond or any other abrasive. Consult your local Industrial Health & Safety Regulations, NIOSH or other requirements for guidance on the required safety procedures and equipment.

WASTE DISPOSAL

Before use, TARGET Green Diamond is not classified as a special waste. During use, however, the product can become contaminated with paints or other materials that would require classification of the waste material as a special waste. It is the responsibility of the use to under take any necessary evaluation, classification and disposal of the material after use. Consult local authorities for information on the disposal requirements and procedures applicable to spent abrasive in you area.

TYPICAL SIEVE ANALYSES

The sieve analyses given in the following table are typical values. Actual values could change from time to time.

Sieve Size		Individual % Retained			Cumulative % Passing		
ASTM E 11	Metric	Medium #16-36	Fine #20-50	Extra Fine #30-60	Medium #16-36	Fine #20-50	Extra Fine #30-60
No. 10	2.00 mm	0-1			99 - 100		
No. 12	1.70 mm	2 - 6	0		93 - 98	100	
No. 16	1.18 mm	30 - 45	0 - 2		50 - 65	98 - 100	
No. 20	0.85 mm	40 - 50	0 - 15		10 - 20	85 - 100	
No. 30	0.60 mm	5 - 15	30 - 50	0	2 - 9	40 - 60	100
No. 40	0.42 mm	2 - 6	20 - 50	5 - 20	0 - 3	5 - 25	80 – 95
No. 50	0.30 mm		5 - 20	25 - 40		0 - 6	45 –65
No. 70	0.21 mm	0 - 2	0 - 5	25 - 35	0 - 1	0 - 1	15 – 35
No. 100	0.15 mm			5 - 25			5 – 15
Pan		0 - 1	0 - 1	5 - 15			

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TYPICAL CHEMICAL ANALYSIS

All grades of TARGET Green Diamond have the following approximate chemical analysis. The metals are present as silicates and other complex compounds in a glassy, non-reactive matrix.

Iron (Fe_2O_3)	21.6 percent weight (dry basis)
Calcium ($CaCO_3$)	None detected
Potassium (K_2O)	0.03
Aluminum (Al_2O_3)	3.19
Magnesium (MgO)	29.18
Chromium (Cr_2O_3)	0.07
Combined Silica (SiO_2)	43.05
Free Silica (SiO_2)	0.20
Sulphur (S)	0.17
Chloride (Cl)	0.03
Lead Arsenate ($PbHAsO_4$)	None detected
Carbonates (CO_3)	0.02
Gypsum ($CaSO_4$)	None detected

TOTAL METALS, ppm

ELEMENT	**Green Diamond 20-50** TOTAL METALS mg/kg	CCME 1996 Maximum Limit Commercial/Industrial
Arsenic	0.05	50
Barium	10	2000
Cadmium	<2.0	20
Chromium	1770	800
Cobalt	21.6	300
Copper	9.8	500
Lead	<10	1000
Mercury	<0.005	10
Molybdenum	7.6	40
Nickel	575	500
Selenium	<0.10	10
Silver	<2.0	40
Tin	<30	300
Zinc	25.8	1500

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